

REMARKS/ARGUMENTS

Claims 7-24 were non-finally rejected in an Office Action dated April 19, 2006. Claim 25 was not mentioned or rejected and accordingly is considered allowable. Claims 7-18, 20-22 and 24 were rejected over Inoue et al. in view of Hasebe et al. and Wen. Claims 19 and 23 were rejected over the foregoing references, in view of Jagannathan et al.

Telephone Interview

A telephone interview was held between the Examiner and the undersigned on July 20, 2006.

The present amendments to claims 7, 9, 17 and 21 were discussed. As amended herein, each independent claim recites either an anti-drying solution (in claims 7 and 9) or a replacing solution (in claims 17 and 21) which has a different composition than the rinse liquid. The present amendments do not narrow the claims, but merely clarify them by changing “is different from” to - - has a different composition than - -.

From paragraphs 38 and 40 of Inoue et al., it appears the only liquid supplied to the substrate immediately after processing is deionized water, and this deionized water performs any and all rinsing and anti-drying functions that may be taught by Inoue et al. Therefore, Inoue et al. cannot suggest that the anti-drying or replacing solution has a different composition than that of the rinse liquid, as recited in each independent claim, since there is only the one liquid. Nothing else is seen in the references or in the last Office Action that suggests this feature.

Additional Amendments

Clarifying, non-narrowing amendments are also being made to claims 20 and 24. New claims 26-29, dependent from claims 11, 14, 17 and 21 are being added.

Regarding Claims 7-16 and 25

A substrate processing apparatus described in amended claim 7 of the present application is characterized by comprising substrate retaining means for retaining a substrate; first processing solution supply means for supplying a first processing solution to the substrate retained by the

substrate retaining means, thereby subjecting the substrate to a predetermined wet process; second processing solution supply means for supplying a rinse liquid as a second processing solution to the substrate retained by the substrate retaining means, thereby subjecting the substrate to a rinsing process for removing the first processing solution; and anti-drying solution supply means for supplying an anti-drying solution having a composition which is different from that of the rinse liquid to the substrate subjected to the rinsing process, thereby replacing the rinse liquid adhered to the substrate with the anti-drying solution.

Claim 25 depends from claim 7 and states that the first processing solution supply means supplies a developing solution to a substrate.

Further, a substrate processing apparatus described in claim 9 of the present application is characterized by comprising substrate retaining means for retaining a substrate wet with a rinse liquid, and anti-drying solution supply means for supplying an anti-drying solution having a composition which is different from that of the rinse liquid to the substrate retained by the substrate retaining means, thereby replacing the rinse liquid adhered to the substrate with the anti-drying solution.

In contrast, according to the invention described in Inoue et al. (US 2002/0160625), a substrate is rinsed after a wet process, such as a developing process, in a wet processing apparatus 1, and then transported just to a high-pressure drying apparatus 2, without spin drainage of the rinsing solution. That is, according to the present invention, after the rinsing solution is replaced with the anti-drying solution, which is different from the rinsing solution, the substrate is transported as wetted with the anti-drying solution. Therefore, the claimed structure is different from the invention described in Inoue et al., where the substrate is transported as wetted with the rinsing solution, and without spin drainage of the rinsing solution.

Thus, according to the present invention, the substrate is prevented from drying by using the anti-drying solution which is different from the rinsing solution in the wet processing unit, which allows not only to select the kinds of the rinsing solution in accordance with the intended wet process but also to use the anti-drying solution which is suitable for the high-pressure drying process. Further, according to the present invention, the rinsing solution is replaced with the anti-drying solution in apparatus which is different from the high-pressure drying unit.

Therefore, the high-pressure drying unit can exclusively carry out the high-pressure drying process, so that the usable types of solution are not limited.

On the other hand, Hasebe et al. (US 5,826,129) discloses means for supplying developing solution and means for supplying rinsing solution to a substrate retained by substrate retaining means. However, Hasebe never discloses anti-drying solution supply means for supplying an anti-drying solution which is different from the rinsing solution as described in the present claims. Therefore, even if the inventions described in Inoue et al. and Hasebe et al. were combined, the combination would not be the structure described in the present claims.

Regarding Claims 17-20

The invention described in claim 17 is characterized in that a plurality of developing units for performing different developing processes for a substrate, respectively, include developing solution supply means for supplying a developing solution to the substrate, and replacing solution supply means for supplying a replacing solution which is different in composition from the rinse liquid to the substrate, thereby replacing the rinse liquid with the replacing solution.

On the contrary, a developing unit of Inoue et al. never discloses replacing solution supply means for supplying a replacing solution which is different from a rinse liquid to a substrate thereby replacing the rinse liquid with the replacing solution. The process of “coating” described in paragraph 27 is completely different from the replacing process and does not meet claim 17. There are no suggestions in this reference with regard to replacing the rinse liquid with the replacing solution after the developing and rinsing.

Hasebe et al. discloses a plurality of developing units. However, each developing unit only comprises developing solution supply means and rinsing solution supply means. Thus, the claimed invention is clearly different from these cited inventions in its structure on the point that each of the plurality of developing units includes the replacing solution supply means, separately from the developing solution supply means and the rinsing solution supply means, thereby replacing the rinsing solution with the replacing solution which is different from the rinsing solution.

For this reason, according to the apparatus described in the cited references, it is necessary to provide special transport units corresponding to the individual developing contents (e.g., an alkaline-development transport unit for transporting an alkaline developed substrate, an organic development transport unit for transporting an organically developed substrate). On the contrary, according to the claimed invention, the substrate can be transported to a common high-pressure processing unit by the common high-pressure processing unit by the common transport unit without regard to either developing unit is used for the developing process. In other words, regardless of which kind of rinsing solution is used, the transport unit and the high-pressure processing unit can be used commonly since the rinsing solution is replaced with the replacing solution which is different from the rinsing solution.

Regarding Claims 21-24

The invention described in claim 21 is characterized by comprising a plurality of developing units for performing different developing processes for a substrate, respectively, and a replacing unit for replacing the solution component adhered to the developed substrate with a replacing solution, wherein each of the plural developing units includes: developing solution supply means; and rinsing solution supply means for supplying a rinsing solution to the substrate, wherein the replacing solution is different in composition from the rinsing solution.

Because of this structure, since the solution component adhered to the substrate developed by the respective developing units is replaced with the replacing solution, which is different from the rinsing solution, by the replacing unit, the common transport unit and high-pressure processing unit can be used with respect to the plurality of developing units.

On the other hand, in Inoue et al., a substrate is loaded to a transferable vessel 6 in the wet condition with rinsing solution, and whole of the vessel 6 with the substrate is transferred to a drying apparatus 2 (Fig. 3, paragraphs 55-56).

Therefore, regarding the structure, the invention described in Inoue et al. is completely different from the claimed invention in which the substrate is transported to the replacing unit, and then the replaced substrate is carried out from the replacing unit and transported to the high-pressure processing unit. That is, according to the cited invention, the substrate is loaded to the

transferable vessel 6 in the wet condition with the rinsing solution, so in this reference, the rinsing solution is not replaced with the replacing solution. Further, as whole of the vessel 6 is transferred to the drying apparatus 2, the vessel 6 is completely different from the “replacing unit” of the present claims.

For at least these reasons, allowance of claims 7-29 is requested.

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Respectfully submitted,



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